HEREDITY

An International Journal of Genetics

EDITORIAL BOARD

Dr J. D. Gross, Edinburgh (1971-72)
Dr K. R. Lewis, Oxford (1971-72)
Dr Mary F. Lyon, Harwell (1971-72)
Professor J. L. Jinks, Birmingham (Editor)
Professor J. R. S. Fincham, Leeds (Editor)

Professor A. D. Bradshaw, Liverpool (1971-73)
Dr B. J. Kilbey, Edinburgh (1971-73)
Professor J. M. Thoday, Cambridge (1971-73)
Dr E. L. Breese, Aberystwyth (1971-74)
Professor J. H. Edwards, Birmingham (1971-74)
Dr H. J. Evans, Edinburgh (1971-74)
Professor J. A. Pateman, Glasgow (1971-74)
Dr B. A. Bridges, Sussex (1971-75)
Professor B. C. Clarke, Nottingham (1971-75)
Dr B. S. Cox, Oxford (1971-75)
Dr Anne McLaren, Edinburgh (1971-75)
Professor W. F. Bodmer, Oxford (1971-76)
Professor J. H. Renwick, London (1971-76)
Professor A. Robertson, Edinburgh (1971-76)
Professor J. H. Subak-Sharpe, Glasgow (1971-76)

HEREDITY

Edited by

John Jinks FRS
Birmingham

John Fincham FRS
Leeds

An International Journal of Genetics founded in 1947 by C D Darlington and R A Fisher and now owned by the Genetical Society of Great Britain

Volume 28
1972

Longman Group Limited
Edinburgh

PRINTED IN GREAT BRITAIN BY
T. AND A. CONSTABLE LTD., EDINBURGH

CONTENTS

PART 1. FEBRUARY

PAGE

THOMPSON, K. F. (Cambridge). Competitive interaction between two *S* alleles in a sporophytically-controlled incompatibility system 1

DOGGETT, H. (Cambridge). Recurrent selection in sorghum populations . 9

CAVILL, A., and GIBSON, I. (East Anglia). Genetic determination of esterases in *Paramecium* 31

HEDGES, R. W. (London). The pattern of evolutionary change in bacteria . 39

PARKIN, D. T. (Edinburgh). Climatic selection in the land snail *Arianta arbustorum* in Derbyshire, England 49

FELSENSTEIN, J. (Washington). The substitutional load in a finite population 37

LAWRENCE, M. J. (Birmingham). Variation in wild populations of *Papaver dubium*. III. The genetics of stigmatic ray number, height and capsule number 71

GALE, J. S. and ARTHUR, A. E. (Birmingham). Variation in wild populations of *Papaver dubium*. IV. A survey of variation 91

ANDERSON, W. W., DOBZHANSKY, TH., and PAVLOVSKY, O. (Yale). A natural population of *Drosophila* transferred to a laboratory environment . . 101

SAKAMOTO, S. (Misima). Intergeneric hybridisation between *Eremopyrum orientale* and *Henrardia persica*, an example of polyploid species formation 109

HUGHES, A. R., and WILKIE, D. (London). Genetic analysis of mitochondrial resistance to tetracycline in *Saccharomyces cerevisiae* 117

GRABOW, W. O. K. (Pretoria). Transductional analysis of methionine genes in *Proteus mirabilis* 129

NOTES AND COMMENTS:

JANAKI AMMAL, E. K., JAGATHESAN, D., and SREENIVASAN, T. V. (Madras and Coimbatore). Further studies in Saccharum-Zea Hybrid. I. Mitotic studies 141

FOULDS, W., and GRIME, J. P. (Dudley and Sheffield). The influence of soil moisture on the frequence of cyanogenic plants in populations of *Trifolium repens* and *Lotus corniculatus* 143

HAMMOND, K., and JAMES, J. W. (Sydney and New South Wales). The use of higher degree statistics to estimate the number of loci which contribute to a quantitative character 146

REVIEWS:

SALAMAN, REDCLIFFE N. The history and social influence of the potato . 149

STENT, GUNTHER S. Molecular genetics: an introductory narrative . 149

JACQUARD, ALBERT. Structures génétiques des populations . . . 151

SEARLE, S. R. Linear models 152

MORTON, NEWTON E. (Ed.), A genetics program library . . . 154

BOOKS RECEIVED 154

PAGE

PART 2. APRIL

MOODIE, G. E. E. (Alberta). Predation, natural selection and adaptation in an unusual Threespine Stickleback 155

LAW, C. N. (Cambridge). The analysis of inter-varietal chromosome substitutions in wheat and their first generation hybrids 169

FOULDS, W., and GRIME, J. P. (Dudley and Sheffield). The response of cyanogenic and acyanogenic phenotypes of *Trifolium repens* to soil moisture supply 181

YOUNG, C. S. H., and COX, B. S. (Glasgow and Oxford). Extrachromosal elements in a super-suppression system of yeast. II. Relations with other extrachromosomal elements 189

HULL, P. (Strathclyde). Maternal foetal interactions and gene frequency changes in populations of mice 201

HARDWICK, R. C., and WOOD, J. T. (Wellesbourne). Regression methods for studying genotype-environment interactions 209

FRIPP, YVONNE (Birmingham). Genotype-environmental interactions in *Schizophyllum commune*. II. Assessing the environment 223

LOPES, R., MATAGNE, R., and STRIJKERT, P. J. (Liege and Eindhoven). Complementation at the *arg-7* locus in *Chlamydomonas reinhardi* . . 239

NOTES AND COMMENTS:

HARBERD, D. J., and MCARTHUR, E. D. (Leeds). Two partially fertile species hybrids in the Brassiceae 253

HARBERD, D. J., and MCARTHUR, E. D. (Leeds). Cyto-taxonomy of *Rhynchosinapis* and *Hutera* (Cruciferae-Brassiceae) 254

BARRAI, I. (Geneva). Variation of metric traits under subdivision and inbreeding 259

REVIEWS:

KOESTLER, ARTHUR. The Midwife Toad 263

VOLPE, E. P. Understanding Evolution 266

Proceedings of the Second International Barley Genetics Symposium. Ed. by Robert A. Nilan 266

DAVID, F. N. A First Course in Statistics 267

WILSON, E. O., and BOSSERT, W. H. A Primer of Population Biology . 268

GRANT, VERNE. Plant Speciation 268

BOOKS RECEIVED 269

GENETICAL SOCIETY OF GREAT BRITAIN: Abstracts of papers . . . 271

PART 3. JUNE

KAPLAN, S. M. (Beer Sheva). Seed production and sex ratio in anemophilous plants. 281

MURTY, B. R., ARUNACHALAM, V., DOLOI, P. C., and RAM, J. (New Delhi). Effects of disruptive selection for flowering time in *Brassica capestris* var. brown *sarson* 287

KALLMAN, K. D. and BOROWSKY, R. (New York). The genetics of gonopodial polymorphism in two species of poeciliid fish 297

PAGE

HAY, D. A. (Birmingham). Genetical and maternal determinants of the activity and preening behaviour of *Drosophila melanogaster* reared in different environments 311

BROCKIE, R. E. (Wellington). Evolutionary Studies on *Maniola jurtina in* Sicily 337

MACKINNON, J. M., and JOHNSTON, J. R. (Strathclyde). Mitotic segregation in polyploid strains of *Saccaromyces cerevisiae* 347

ANTUNES-CORREIA, J. C. (Oeiras). Somatic association in BHK_{21} homosynkaryons 357

JINKS, J. L., PERKINS, JEAN M., and GREGORY, R. S. (Birmingham). The analysis and interpretation of differences between reciprocal crosses of *Nicotiana rustica* varieties 363

CONN, D. L. T. (London). The genetics of the bee-like patterns of *Merodon equestris* 379

NOTES AND COMMENTS:

FINCHAM, J. R. S. (Leeds). Heterozygous advantage as a likely general basis for enzyme polymorphisms 387

MATHER, K., and MCGILL, ANNE (Southampton). Competition in *Drosophila*. II. Homozygous lines 393

JINKS, J. L., and PERKINS, JEAN M. (Birmingham). Predicting the range of inbred lines 399

CRAWFORD-SIDEBOTHAM, T. J. (Birmingham). The role of slugs and snails in the maintenance of the cyanogenesis polymorphisms of *Lotus corniculatus* and *Trifolium repens* 405

REVIEWS:

KOJIMA K. (Ed.). Mathematical topics in population genetics . . 413

MITCHISON, J. M. The biology of the cell cycle 414

MATHER, K., and JINKS, J. L. Biometrical genetics 415

BOOKS RECEIVED 417

INDEX OF AUTHORS 419

INDEX OF SPECIES 425

INDEX OF SUBJECTS 427